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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/628,941

07/29/2003

Roger A. Fratti

12-19

9094

7590

09/02/2005

Ryan, Mason & Lewis, LLP
1300 Post Road, Suite 205
Fairfield, CT 06824

EXAMINER

NADAV, ORI

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 09/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/628,941	FRATTI ET AL	
	Examiner	Art Unit	
	Ori Nadav	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

In view of the appeal brief filed on 06/30/2005, PROSECUTION IS HEREBY REOPENED. A rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oda (6,091,121) in view of Savastiouk et al. ("Atmospheric downstream plasma", European semiconductor, June 1998, pages 1-4) and Shibib (6,559,011).

Art Unit: 2811

Regarding claims 1, 3, 13 and 16, Oda teaches in figures 102 and related text a method for controlling curvature of a power transistor device comprising a device film formed on a substrate, the method comprising the steps of:

applying a stress compensation layer (e.g. layers 12, 15, 17) to a surface of the device film (any layer below them), the stress compensation layer having a tensile stress sufficient to counterbalance at least a portion of the overall residual stress of the device.

Oda does not teach thinning the substrate, wherein a power transistor device having an overall residual stress attributable at least in part to the thinning step.

Savastiouk et al. teach thinning the substrate.

Shibib teaches a DMOS power transistor (column 7, lines 9-25).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the device in a power transistor and to thin the substrate in Oda's device in order to use the device in an application which requires power transistor and in order to adapt the device to current technology and to increase the numbers of chips per wafer, respectively. The combination is motivated by the teachings of Savastiouk et al. who point out the advantages of using thinner substrate.

Note that the device of prior art has an overall residual stress attributable at least in part to the thinning step.

Regarding claims 2, 4-6, 8-10 and 14-15, prior art's device includes a stress compensation layer comprises a thin film, wherein the device substrate is thinned using

Art Unit: 2811

aggressive backside substrate removal processing, wherein the thin film comprises a dielectric material comprising at least one of a silicon nitride, a silicon oxide, a silicon oxynitride, an

oxynitride, a nitride and combinations comprising at least one of the foregoing dielectric materials, wherein the thin film is applied using a deposition technique comprising at least one of sputtering, chemical vapor deposition, electroplating and spin-on processing, wherein the thin film serves as an encapsulating layer, wherein the stress compensation layer applied to the surface of the device changes and maintains the curvature of the device (this feature is inherent in prior art's device).

Regarding claims 7 and 11-12, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to monitor the curvature of the device by using an off-axis optical laser technique, and to repeat the steps of thinning and applying until a desired curvature is attained in prior art's device in order to have better control over the characteristics of the device by using known monitoring techniques.

Response to Arguments

Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References C-D are cited as being related to application of tensile stress.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ori Nadav whose telephone number is 571-272-1660. The examiner can normally be reached between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Loke can be reached on 571-272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

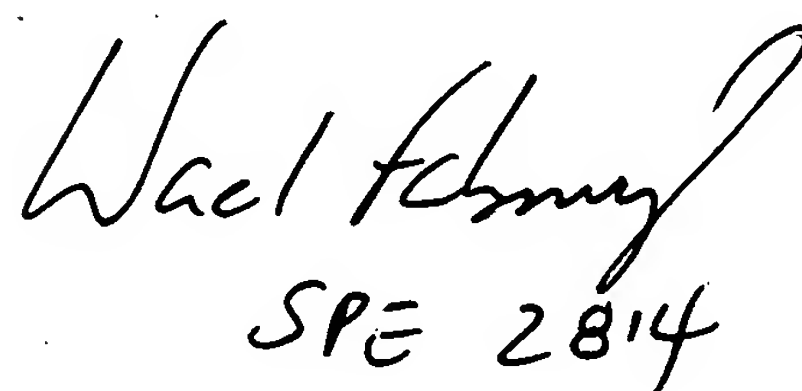
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2811



O.N.
8/24/05

ORI NADAV
PRIMARY EXAMINER
TECHNOLOGY CENTER 2800



SPE 2814